

Location:
NHDOT- Large Highway Design Conference Room

Time:
10:00 AM to 11:30 AM

Purpose of Meeting: Second Quarter Meeting 2019

Invitees:

✦ Bob Landry, NHDOT
✦ Angela Hubbard, NHDOT (Co-Chair)
✦ Joe Adams, NHDOT
✦ John Poisson, NHDOT
✦ David Scott, NHDOT
□ Tony Weatherbee, NHDOT

✦ Tom Kendrick, MJ
✦ Bob Durfee, D&K
✦ Steve Hodgdon, HTA (Co-Chair)
✦ John Watters, GPI
✦ Adam Stockin, WSP
✦ Tom Levins, GM2

Guests: ✦ Kim Smith (H&H), ✦ Dan O'Connor (Collins)

AGENDA ITEMS:

1. Department staff changes (promotions, new-hires, retirements, etc.)

- There has been a blending of the former in-house and consultant sections in Bridge Design to allow all engineering staff to work on in-house design as well as review of consultant projects. As a result, there will now be approximately 12 NHDOT Project Engineers who will also be working with consultants.

Retirement:

- Pete Parenteau, technician, retired – 46+ years of service.
 - Bridge Design might consider seeking consultant CADD support through task assignments on Statewide on-call contracts.

New hires:

- Loretta Gerard Doughty is a PM – CE6
- New bridge hire Dzijeme Ntumi. She will be starting July 1st in the existing bridge section.
- Jason Ayotte – Highway Design - CE4

2. Summary of In-House Design Section staff meetings

- Only 2 staff meetings since March. Angie will post the April meeting. Not much was discussed at the May meeting.
- The April meeting discussed the upcoming AASHTO revisions.

3. NHDOT Information for Consultants

- Synthetic fiber reinforcement in the approach slabs.

- A notice was sent out last April regarding a new special provision for synthetic fiber reinforcement in the approach slabs. The special provision changed the current spec from 7 lb/cy to 4 lb/cy. This has been retracted until after field tests are completed this summer trying different dosage for different manufacturers. The 7 lb/cy is too difficult to work with and it was felt the dosage could range depending on manufacturer. Currently, the CA lets the Contractor put in only 3-5 lb/cy. We also will be doing trial tests in bridge curbs and expansion joint blockouts. After the field tests are completed, a new special provision will be developed.
- Fibers are being added to concrete curb and expansion joint headers on a few trial projects.
- Tom L.- wanted to know if there is a way to adjust the size of the fibers which would change the spec. such as changing to a smaller size which might make it easier to work with.
- Steel protective coating policy
 - Working on new guidance with Mark R. on how to proceed with what coatings should be used, a memorandum will be out this year to give direction
- Bridge Design Manual (BDM)
 - Chapter 12, Overview of Existing Bridge Section, Bridge Inspection, and Load Ratings is complete. This is generally an overview of what was included in the inspection manual, if you were not aware of inspection manual.
 - Bridge Inspection manual is now available on the website
<https://www.nh.gov/dot/org/projectdevelopment/bridgedesign/documents.htm>
 - Consultant members of the subcommittee suggested the Department consider using consultants to help with getting more chapters finalized to complete the new BDM.
 - Many of the details (typically provided in the Appendices) in the BDM are out of date. Please refer to the Department website for the most recent details – it is easier for the Department to maintain the website than the sections of the BDM. Future revisions of the chapters will be removing the details and provide a link to the detail on the website.
 - Do we need to have a separate email sent out by Bob Landry to all consultants? The consultants on the committee agreed it was beneficial.
- A new database was created for Bill O. to send out notifications for solicitations directly to consultants that have signed up.
- Stainless Steel Reinforcing and bar bends in the deck:
 - The Contract Administrator, Matt Lampron, on the Route 102 over I-93 bridge provided feedback regarding the SS in the deck.

- The transverse deck bars were 50-ft. long. Manufacturers say they can make and ship up to 60-ft. lengths for #3-#7 bars. Angela asked if the long lengths are too difficult to install. Matt said the Contractor will rather have a longer bar than more splices. As the bar size increases, the bar is heavier so bars greater than #6 should be shorter and splices used.
- Angela asked if the bridge is super elevated and has a 5% shoulder break, and the transverse bar is one long bar (no splices), can the transverse bar be bent (tied) for the shoulder break?
 - Stainless steel was difficult to bend, and tie down, whereas black bar could be bent. #5 or smaller could be tied down for the shoulder break.
 - Designer should evaluate if greater than a #5 than they would need a lap to the super and the shoulder.
 - It depends on how much of a change in slope between the break-in-slope and the deck slope.
 - One bent bar and lap with straight bar.
 - The other issue is that the cross-section didn't detail both sides of the bridge. If they did, they would have noticed the bar needed to be bent. The complete deck section shall be detailed for reinforcing. There should not be any partial deck section reinforcing detail. This will be noted in the Bridge Manual.
 - Angela will reach out to construction for suggestions of what the limitations are and have them give the designers suggestions.
- Bob Landry noted that VTtrans is experimenting with cold rolled reinforcing in VT – metallized, no issues with loss of coverage due to bending during fabrication. Angela will look into getting more information.
- Partial Depth Precast Deck Panels.
 - The office is still in discussion regarding how to address the additional steel required over the piers when using partial depth precast panels. May need #5 and #6 bars placed in top mat to meet AASHTO % reinforcing requirements.
 - The bridge on Rte. 102 over I-93 used #5 and #6 bars in the top mat and the CA said they had no issues with top cover since there is only 1/16" difference in height of the bars., Though the question came up: How did they locate the cover without a magnet? Bridge Design to pose question to Construction Bureau. *(subsequent to this meeting David Scott reached out to Jim Bowles who stated that the spec reads "Concrete cover will be determined with a radar rebar depth measuring unit.")*
 - One solution may be to stop panels over the piers Other states (Texas) have taken this approach.
 - MaineDOT believes that uncoated strands in deck panels do not provide a similar service life to GFRP or stainless steel in the overlay.

- Bob Landry noted that the Exit 16 bridge in NH (West Portsmouth Street) has deck panels and it is in great shape.
 - There is a concern with MASH testing of guardrail as the anchorage is with hoop bars and if a panel is there than the leg cannot reach the intended depth
 - There is a new publication: “Guidelines for Rehabilitating Historic Covered Bridges” by National Park Service HAER, HPTC, and FHWA. It’s a good reference for covered bridge rehabilitation. Bill Caswell, President of National Society for the Preservation of Covered Bridges is looking to see that all NH Design Consultants get a copy.
 - Bob D. – this publication addresses section 106 rehabilitation standards specific to bridges as compared to buildings.
4. Technical and business-related topics
- DOT is pursuing clarity with anodes. David reaching out to other states to assist in NH direction
 - Bob D. – met with Vector Corrosion Technologies at the International Bridge Conference – questions about service life – studies on their devices – Bob to reach out and pass this information along.
 - Matt Miltenberger recommended by Steve Hodgdon as a technical resource.
 - Bob L. has talked to several contractors in the state and they said that they are going to be empty after 2019
5. Potential NHDOT and Consultant bridge training opportunities
- David Scott – NHI strut and tie modeling has been recommended by FHWA
 - Several consultants attended this training at MaineDOT and it was well received
 - The current AASHTO code requires this type of analysis in some instances.
6. Bridge Bureau workload and anticipated consultant support needs
- Anticipate getting some state funding for initial bridge slope intercept costing – may go out to consultants
 - First 10 year plan GACIT meeting is next Wednesday, fully loaded, wave of current work will continue to build without slowing down
 - BUILD grant Hinsdale Brattleboro - \$20 million – joint applicants 7/15/19 with VT
7. Other Discussion topics
- The committee to revisit the topic list from the initial brainstorm at the committee inception
 - Integral Abutments
 - MaineDOT uses integral abutments with 10’ maximum in-line wing walls. This causes reinforcing in the abutment stem to be very large. Appears

other states do not require this configuration. NHDOT allows either u-back or in-line.

- NHDOT has a passive pressure diagram shown in their manual that has a change in the linear pressured distribution with depth. Angela would review the detail and provide an explanation why the pressure intensity is shown to vary.
- VTrans Integral abutment guidelines will not be updated, they are going to use NYSDOT guidelines moving forward
- VTrans and MassDOT use U-back walls that butterfly.
- MSE wall guidance being discussed due to impact loading and future maintenance. May require stub abutments to also be supported on piles for extreme event resiliency. Some brief discussion on considering risks/warrants based on traffic and clear zone.
- Concrete haunches through the state are going to be evaluated by sounding and if they are hollow then they will remove. Cannot be seen from the ground. If a consultant is involved with a preservation project, inquire if this effort will be needed or if it has already been done by the Department.

8. Subcommittee membership rotation / new members

Tom Kendrick, Bob Durfee, Bob Landry	Sept. 2017 to Sept. 2019
Steve Hodgdon, John Watters, Joe Adams, John Poisson	Sept. 2017 to Sept. 2020
Adam Stockin, Tom Levins, David Scott, Tony Weatherbee	Sept. 2017 to Sept. 2021
Kim Smith, Dan O'Connor	Sept. 2019 to Sept 2022

9. Upcoming meetings are scheduled on Friday's from 10:00 to 11:30 AM on the following dates: September 13, 2019, December 13, 2019, March 3, 2020, June 12, 2020, September 11, 2020, December 11, 2020.

Bridge Design Manual Update:

ABH 5/9/19

Chapter 1 - General Information

- Completed
- Approved by FHWA & NHDOT
- Placed on website Jan. 16, 2015

Chapter 2 - Bridge Selection

- Completed
- Approved by FHWA & NHDOT
- Placed on website Jan. 16, 2015
- Revision placed on website August 24, 2018

Chapter 3 - Preliminary Design

- Completed
- Approved by FHWA & NHDOT
- Placed on website Jan. 16, 2015

Chapter 4 – Loads & Load Factors

- Completed
- Approved by FHWA & NHDOT
- Placed on website Jan. 16, 2015

Chapter 5 - Seismic Design and Retrofit

- Completed
- Approved by FHWA & NHDOT
- Placed on website Jan. 16, 2015

Chapter 6 - Substructure

- Completed – *A complete chapter revision will be sent out for review soon and will be put on-line after approved.*
- Approved by FHWA & NHDOT
- Placed on website Feb. 8, 2015

Chapter 7 - Superstructure

- 95% Complete
- NHDOT, FHWA and Committee Members approved structural steel and expansion joint section.
- NHDOT and Committee Members given deck and bearing section for review September 28, 2017
- Temporary Barrier Memorandum sent out 5/15/2018
- Partial Depth Precast Panels and Girder Haunch Memorandum sent out 1/25/2018
- Rehabilitation and Preservation sections and details are being developed.
- Some discussion on policy decisions still need to be made.
- Planning to give complete chapter for review on September 2, 2019.

Chapter 8 – Concrete Structures

- 0% Complete

Chapter 9 – Miscellaneous Structures

- 0% Complete

Chapter 10 - Non-Bridge Structures

- Completed
- Approved by FHWA & NHDOT
- Placed on website Jan. 16, 2015

Chapter 11 - Preparation of Plans

- Completed
- Approved by FHWA & NHDOT
- Placed on website Jan. 16, 2015

Chapter 12 – Overview of Existing Bridge Section, Bridge Inspection, and Load Ratings

- 100% Complete
- Sent out for review on 3/25/19.
- Put on website June 10, 2019

Chapter 13 – Untitled

Chapter 14 – Municipal Bridge Program

- 0% Complete
- May not need to be part of the Bridge Design Manual



1. Product Name

- AZZ GalvaBar™

2. Manufacturer

AZZ GalvaBar
5101 Bird Creek Ave.
Catoosa, OK 74015
Phone: (918) 379-0090
Email: GalvaBar@azz.com
Web: <https://www.azz.com/galvabar>

3. Product Description

Basic Use

AZZ GalvaBar is a continuous galvanized rebar (CGR) with a specialized pure zinc alloy coating for construction projects featuring exceptional formability that complies with ASTM A1094/A1094M – 16. Because GalvaBar is processed prior to fabrication, bar can be staged in stock lengths prior to being released by fabrication creating a consistent flow of product. The end result is a seamless supply of GalvaBar to projects through current supply chain without double handling resulting in better product flow and customer satisfaction. AZZ GalvaBar is sold as a process to client rebar and as a product.

GalvaBar has the proven track record of hot-dip galvanizing and innovative processing from AZZ. Because GalvaBar will not crack, flake or peel during fabrication, it allows for a seamless supply of corrosion resistant reinforcement. GalvaBar is released directly to the fabrication facility, thereby improving lead times. GalvaBar requires no special equipment for fabrication and is delivered straight to the job site. Installations require no special handling or equipment for protection from the elements at the job site.

GalvaBar product video here.

Use where corrosion resistant reinforced concrete is used. GalvaBar can be used for:

- Architectural concrete
- Retaining and sound walls
- Precast structures
- Parking structures
- Lifting points
- Highway barriers
- Reinforced bridge decks and components
- Paving slabs
- Foundations
- Roof slabs
- Sea walls
- Anchors

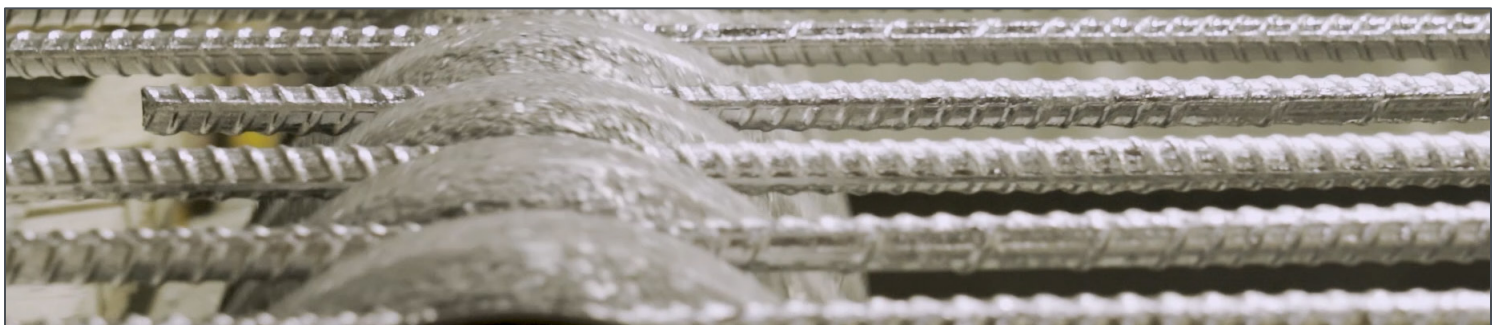
Composition and Materials

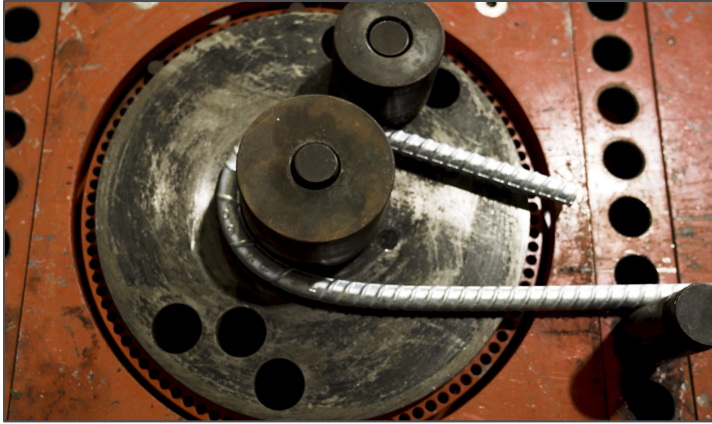
GalvaBar consists of a minimum 50 micron zinc alloy coating (2 mil); metallurgically bonded to steel rebar.

GalvaBar process video here.

Features and Benefits

- **Design**
 - Designate the ASTM A1094/A1094M – 16 Standard Specification for Continuous Hot-Dip Galvanized Steel Bars for Concrete Reinforcement
 - Specify AZZ GalvaBar as a direct replacement for ASTM A767 Standard Specification for Zinc-coated (Galvanized) Steel Bars for Concrete Reinforcement
 - Engineered like uncoated “black” rebar for bend diameters and splice/lap lengths
- **Performance**
 - Formability—can be fabricated after galvanizing without cracking, peeling or flaking
 - Fabrication—by any rebar fabricator without specialized equipment
 - Durability—bond strength and slip resistance in concrete is superior to uncoated “black” bar
 - Reduced splice/lap lengths over epoxy coated rebar (ECR)
 - Proven protection of galvanizing dating back over 300 years
- **Processing**
 - Proven corrosion protection with pure zinc over other corrosion resistant reinforcement technologies
 - Automated factory-controlled procedures to optimize quality control of standard mill lengths up to 60+ feet
 - Consistent flow of inventorial product allowing for field changes to be addressed





• Installation

- Transport seamlessly through current supply chains without double handling or additional logistics
- Handling rebar can be staged in stock lengths prior to being released by fabrication
- Can be stored outside in the weather without deterioration of the process

• Cost

- Significantly less expensive than non-ferrous, high strength and stainless rebar
- Competitive with epoxy coated rebar (ECR)
- Low total of ownership over the life of a structure

Types, Dimensions and Sizes

Sizes: #3 to #11 available.

Finish:

- Passivation-quench treatment available

Product Limitations:

The continuous galvanized rebar (CGR) process currently includes rebar sizes #3 thru #11.

Other Applicable *CSI MasterFormat* Categories

- **03 33 13** Heavyweight Architectural Concrete
- **03 33 16** Lightweight Architectural Concrete
- **03 41 16** Precast Concrete Slabs
- **03 41 23** Precast Concrete Stairs
- **03 45 13** Faced Architectural Precast Concrete

4. Technical Data

Applicable Standards

American Association of State and Highway Transportation Officials (AASHTO):

- **M111-18** Standard Specification for Zinc (Hot-Dipped Galvanized) and coatings on iron and steel products

ASTM International

- **ASTM A123/123M** Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

- **ASTM A90/A90M** Test Method for Weight [Mass] of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings
- **ASTM A143** Practice for Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement
- **ASTM A153/153M** Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
- **ASTM A384** Practice for Safeguarding Against Warpage and Distortion During Hot-Dip Galvanizing of Steel Assemblies
- **ASTM A385** Practice for Providing High-Quality Zinc Coatings (Hot-Dip)
- **ASTM A615/A615M** Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
- **ASTM A641** Specification for Zinc-Coated (Galvanized) Carbon Steel Wire
- **ASTM A706/A706M** Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement
- **ASTM A767/A767M** Standard Specification for Zinc-coated (Galvanized) Steel Bars for Concrete Reinforcement
- **ASTM A780/A780M** Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
- **ASTM A996/A996M** Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement
- **ASTM A1055/A1055M** Standard Specification for Zinc and Epoxy Dual-Coated Steel Reinforcing Bars
- **ASTM A1094/A1094M - 16** Standard Specification for Continuous Hot-Dip Galvanized Steel Bars for Concrete Reinforcement
- **ASTM B6** Specification for Zinc
- **ASTM B487** Test Method for Measurement of Metal and Oxide Coating Thickness by Microscopical Examination of Cross Section
- **ASTM B852** Specification for Continuous Galvanizing Grade (CGG) Zinc Alloys for Hot-Dip Galvanizing of Sheet Steel
- **ASTM E376** Practice for Measuring Coating Thickness by Magnetic-Field or Eddy-Current (Electromagnetic) Testing Methods



Concrete Reinforcing Steel Institute (CRSI):

- **Manual of Standard Practice**
- **Placing Reinforcing Bars**

International Standards Organization (ISO)

- **ISO 14657** Zinc-coated steel for the reinforcement of concrete

US Federal Specifications

- **DOD-P-21035** Paint, High Zinc Dust Content, Galvanizing Repair
- **MIL-P-26915** Primer Coating, Zinc Dust Pigmented

Environmental Considerations

GalvaBar is a sustainable material created through an environmentally friendly process free of volatile organic compounds (VOCs) and hazardous air pollutants.

The 100 percent recyclability of galvanized steel is a great benefit to minimizing environmental impact,

Contact manufacturer for CRSI and AGA EPD(s) information.

5. Installation

Do not bend or straighten bars in a manner that may injure the material. Splicing to be performed per manufacturer's instructions and according to project drawings.

Follow manufacturer's instructions, project drawings and per ASTM Practice A780/A780M.

Link to product installations are located [here](#).⁹

6. Availability and Cost

Please contact manufacturer for availability and pricing.

7. Warranty

This product does not have a warranty.

8. Maintenance

This product requires no maintenance.

9. Technical Services

Contact AZZ Galvabar for technical support. GalvaBar facilities will coordinate with steel mills and fabrication detailers to be sure all questions are answered and code requirements are met. Services include design professional consultation, continued education courses, and project-site assistance.

10. Filing Systems

- SpecLink
- ConstructConnect
- Additional product information is available from the manufacturer upon request ↪

ACEC/Maine DOT Bridge Design Subcommittee

MEETING MINUTES

June 18, 2019

Location

MaineDOT, Room # 317 A-B

Time

1:00 PM to 3:00 PM

Purpose of Meeting

2nd Quarterly Meeting of 2019

Invitees

☐ Wayne Frankhauser, MaineDOT
☒ Jeff Folsom, MaineDOT
☐ Leanne Timberlake, MaineDOT
☒ Rich Myers, MaineDOT
☒ Garrett Gustafson, MaineDOT
☒ Laura Krusinski, MaineDOT
☐ Kathy Parlin, MaineDOT

☐ Ben Foster, MaineDOT
☒ Theresa McAuliffe, McFarland Johnson
☒ Jenn MacGregor, Kleinfelder
☒ Jaime French, Fuss & O'Neill
☒ Adam Stockin, WSP
☒ Josh Olund, HNTB

AGENDA ITEMS

1. Introductions

- a. Approval of March 2019 Meeting Minutes – *several editorial comments identified, otherwise approved. Minutes will be finalized and posted to the website in the near future.*
- b. Welcome Josh Olund to the committee - *complete*

2. Information Dissemination by MaineDOT

- a. Contracting /workload
 - 2020 work plan update- JSF – *STIP approved by FHWA; slightly later this year than typical. New projects are being activated and consultants are being contacted as needed. Eight projects have been deferred from 2019 to 2020 – eight total projects totaling approx. \$26-million in construction, which equates to approximately 20-30% of program funding and 10% of the 2019 projects. There will likely be a funding ripple effect into subsequent years. Candidate selection starting for next three year Work Plan. Many current projects need supplemental funding therefore there will be funding for fewer new projects in the next work plan.*
 - Station 46 Bridge- This project is a 2019 BUILD grant candidate (former TIGER grant program) with an expected construction cost of \$30 million. 80% of the cost will be requested from the BUILD Grant Program.
 - Update? – *The project has been assigned; the Preliminary Design phase recently kicked off. A Build Grant Application will be submitted in July to help fund the project.*

- Bundled Bridges- Two bundles have been developed; one in Franklin County and one for interstate bridges in the Yarmouth area. Funding will be split 80/20. Projects will be funded 50% in next program. Total available funding is \$225 million; Department hopes to receive \$10 to \$15 million and projects will target lower population areas.
 - Update? – *FHWA noted award notifications would occur in Spring 2019; the grant requires construction funds to be obligated by September 2021.*
- The Department-wide RFQ has been postponed until Fall of 2019. – *No timing update beyond this. The last round of GCA's resulted in all consultants being selected. However, this time the number of selected consultants will likely be trimmed since managing 13 consultants is difficult.*

b. MaineDOT Staffing Update:

- New Positions
- New Employees – *Tom Furrow, Administrative Assistant*
- Retirements - *Roger Sproul retired and Rickey McKenna promoted to Appraiser III to fill the position.*
- Other – *two AE's received PE's; promoted to Civil Engineer II. The Geotechnical Engineer PE left the DOT and moved to west coast*

3. Summary of Designer Meetings (Rich, Garrett) - *Rich can provide minutes if requested.*

One meeting since last ACEC meeting: Informational Only - A Father/Son team discussed Hycrete which is a liquid concrete admixture to protect steel and reduce permeability, perhaps better than CaNi. The product may have been used in a dolphin project by MaineDOT – the resulting concrete had difficulty meeting air entrainment criteria.

Hycrete may provide a 70-80% reduction in permeability and was first used in a large-scale project in New Jersey in 2006; the product is now used in all CTDOT projects.

4. Discussion Topics

Geotechnical (Laura K.)

- Cohesive Soil Scour: FHWA is looking for a site to do in-situ testing to improve ability to predict scour at locations with cohesive soils. – *a test boring was performed in the Scarborough maintenance lot – the results of the in-situ testing device are promising and FHWA agreed to move forward with this as a test site. The actual test will be in July; the objective is to improve/modify scour predictability with fine-grained materials.*

- *EDC5 – the next progress report is due to FHWA in July, which includes identification of underutilized tools such as seismic refraction and borehole geophysics – Laura is looking to consultant teams to identify projects that could benefit to use these tools. CPT testing was used on two bridge replacement projects in Falmouth. CPT was performed by Summit Engineering (as opposed to ConeTech).*

a. Continuation of previous discussion

- *ACEC NH- Knowledge Share- Adam Stockin – The following is a brief summary; see the attached meeting minutes for more details.*
 - *NHDOT is blending in-house and consultant bridge teams (sections) within the DOT*
 - *Approach slabs are being cast with synthetic fibers in-lieu of top mat of steel; the specs call for 7% fibers but may be reduced to 4 or 5% as requested by construction for improved workability and finishing.*
 - *Protective coatings for steel girders – new guidance forthcoming*
 - *Transverse deck bar placement has proved difficult at crown or high-shoulder breaks with stainless bars – issue not seen in Maine, however with many stainless concrete decks going out in the past construction season they will look to see if this issue arises*
 - *Continuous spans – more guidance on how to accommodate additional negative moment rebar with the use of partial depth panels is being discussed/developed. More discussion is needed for consensus.*
 - *NH contractors are noting they're light on work after 2019; this is opposite than seen with MaineDOT contractors*
 - *Integral abutments: in-line vs U-wings. NHDOT and VTrans use return walls; MaineDOT uses in-line walls. More discussion on this topic may happen at future meetings.*
 - *Issues with abutments perched on MSE walls have been identified – how to maintain/fix walls in the future due to corrosion or from errant vehicles.*
 - a. *Laura noted the use of stainless steel in MSE panels in Sapling Township; reasonable cost was bid.*
 - *Deck haunches, flush with the bottom of the girder flanges and extending approximately 3-inches beyond the tips, are falling – a sound, chip, and remove program is underway similar to that on the I-95 High-Level bridge.*

• Ideas for streamlining project development & delivery

- *Incomplete and inconsistent submittals. It was asked if the Department can outline the submittal expectations.*

- A Bridge Design Guide update is forthcoming, with traction anticipated this summer. The first chapter to be revised is the project development section, with clarity to identify separation of PDR and PIC milestone needs. The guidance may also suggest trying to engage Resident Engineers earlier, perhaps around 60%. Intend to define a *Semi-Final Plans submission that will include an item list for the review by construction staff to be effective.*
- Updates to construction cost estimating data & methods - *estimating guidance: need to develop a “reasonable” estimate, someplace between historic bids and current bids. This approach may result in the engineer’s estimate being the low bid on a number of projects in the near-term. However, if the Engineer’s Estimate is too conservative to match the current bid environment, the DOT may not be able to reject bids that are only 10% beyond this conservative value, but may have been 20% beyond a reasonable value.*
- PIC submittals and Utility \ ROW Coordination – *the Department recognizes that the expectations for PDR have grown over the past year or two to include much of that needed for PIC. Going forward, the PDR and PIC will go back to being separate milestones.*
- A possible query of Bridge GCA firms to solicit feedback on items that would benefit from greater clarity and to identify common challenges was discussed. Questions could include:
 - *still in progress*
- MaineDOT CADD standards and deliverables. – *new Bentley rollout has not yet affected the bridge group; likely will in the future.*
- Low Shrinkage Concrete – Durability testing is being completed on the Jonesport-Beals Bridge. UMaine has a new lab to investigate concrete durability (partnering with MaineDOT and VTrans).
 - Results: *The Department bought two devices for testing shrinkage (a shrinkage ring and one other device for an elongated mortar bar). Plan to randomly test Class A and LP this summer to gather baseline results to then be used to establish changes to standard specifications. VirginiaDOT and NYSDOT have limits within their specs; DOT may follow suit.*
- Computer simulation for MASH crash testing - NETC style rail, 3-bar, 4-bar, NH style (steel) transitions and Maine style (concrete) transitions. No concrete barrier will be included in the study.
 - Results? – *The finite element models were calibrated using previous crash test results. Powerpoint and simulations may be*

forthcoming. All steel rails, concrete end posts, and steel transition railings were investigated. All railings have passed the simulations; the next step may include physical testing or immediate designation of MASH compliance – this is up to states per FHWA. Note: 2-bar and 4-bar railings were crash-tested under NCHRP 350.

Changes to concrete barrier are forthcoming; likely single-slope barrier. MaineDOT is looking at details within other states to begin this effort.

- New composite beam – In March the Department advertised a project in Hampden using composite beams for the Grist Mill Bridge;

Was presented at a designers meeting; shop drawings recently submitted and erection is next year. Possible future presentation including lessons learned from construction.

b. New discussion items

- Update Subcommittee Goals – *one change noted: goal to have minutes developed, approved, and posted within 1-month of meeting. All agreed this was reasonable.*
- Section 106 process – *many historic structures within Team North's inventory of projects. A case study project would be helpful for discussion, including the bridge itself and the surroundings. All trusses are now historic; these projects require increased attention to reasonable, appropriate development of:*

- *purpose and need statement*
- *evaluation of alternatives*
- *rehabilitation limits/types*

Also looking for innovative ways to rehabilitate all-concrete structures

- *Bare deck traction method: saw-cut grooving vs micro-milling. Both tried by DOT with mixed opinions. The burlap finish resulted in a rougher finish; allowance and methods for this type of finish were removed from recent spec book due to too many issues. Diamond grinding may be used on a job in Paris soon, but cost is high – no local subcontractors to perform the work. Note: bare decks may become more standard due to increased use of stainless steel and GFRP rebar, regardless of AADT.*

c. Potential future discussion topics

- MaineDOT moving toward single slope concrete barrier.
 - Details? – *no new details; still investigating which way to go and which states have standards. Looking at NHDOT.*

- Research – UMaine micropile supported integral abutments. *Funding for phase 1 is being executed (analytical study); phase 2 (field monitoring) will happen at a later date. The research and resulting design methodology needs to be suitable for use by MaineDOT designs on future projects (i.e., use software available to Department staff). Adam noted NHDOT will be constructing a micro-pile supported integral abutment now; NYSDOT has done a few.*
- *Curved Girder Integral Abutment Research – New NETC research will happen soon, performed by University of Amherst.*
- *VTrans 3-span cantilever bridge – discussed Morristown and East Montpelier; no interest from MaineDOT.*

d. Training Areas

- *Jeff suggested reviewing the NHI website for training opportunities*
- Other?

5. Subcommittee Rotation for Consultants

(2-yr rotations for new members joining 2014 and later)

- | | |
|---|----------------------|
| a. Theresa McAuliffe, McFarland Johnson | Q1 2018 thru Q4 2019 |
| b. Jennifer McGregor, Kleinfelder (Geotech Rep) | Q2 2018 thru Q2 2020 |
| c. Jaime French, Fuss & O'Neill | Q2 2018 thru Q2 2020 |
| d. Adam Stockin, WSP | Q4 2018 thru Q3 2020 |
| e. Josh Olund, HNTB | Q2 2019 thru Q1 2021 |

6. The Next Meeting is set for Tuesday, September 17, 2019 at 1 p.m.